

Claims

1. A water draining device comprising a receiving tank, said receiving tank including a first chamber under ambient pressure and capable of receiving arriving water, and a second chamber connected to said first chamber, said second chamber being connectable to a vacuum source so that said second chamber can be placed under vacuum for aspirating water collecting in the first chamber into said second chamber, and said second chamber including at least one drain from which water can be drained from said second chamber.

2. In combination, the water draining device according to claim 1 and a paper machine, said paper machine having a machine width, and said draining device extending at least substantially over the machine width.

3. The combination according to claim 2 wherein the water draining device is associated with a felted press of said paper machine.

4. The combination according to claim 2 wherein at least one of said first chamber and said second chamber extends at least substantially over the machine width.

5. The combination according to 4 including apertures distributed over the machine width, said apertures connecting said first chamber and said second chamber.

6. The combination according to 2 including apertures distributed over the machine width, said apertures connecting said first chamber and said second chamber.

7. The combination according to claim 2 wherein said second chamber includes two machine sides, and said at least one drain is on at least one of the two machine sides of said second chamber.

8. The combination according to claim 2 including throttling apertures connecting said first chamber and said second chamber.

9. The combination according to claim 2 wherein an average direction of flow of water flow in said first chamber is at least substantially free of cross-flow.

10. The combination according to claim 9 wherein an average direction of flow in said second chamber has a cross component running in a machine width direction.

11. The combination according to claim 2 wherein an average direction of flow in said second chamber has a cross component running in a machine width direction.

12. The combination according to claim 2 including at least one pipe connecting said first chamber and said second chamber, said at least one pipe including two open ends; a partition between said first chamber and said second chamber including connecting apertures; and one open end of said at least one pipe opening in a respective connecting aperture and the other open end opening into said second chamber.

13. The combination according to claim 12 wherein said at least one pipe comprises a plurality of pipes distributed over the machine width.

14. The combination according to claim 13 wherein said plurality of pipes comprises about 0.5 to 5 pipes per meter.

15. The combination according to claim 12 wherein said at least one pipe has a diameter of about 10 to about 100 mm.

16. The combination according to claim 2 wherein the vacuum in said second chamber is less than about 0.2 bar.

17. The combination according to claim 16 wherein the vacuum in said second chamber is less than or equal to about 0.05 bar.

18. The combination according to claim 2 wherein said second chamber is formed by an interior of a transversely extending pipe under vacuum, said pipe including a jacket having apertures connecting said first chamber and said second chamber.

19. The combination according to claim 2 wherein said receiving tank is divided into segments over the machine width.

20. The combination according to claim 2 wherein said receiving tank is constructed so as to be continuous over the machine width.

21. The combination according to claim 2 including a volumetric pump producing the vacuum in said second chamber.

22. A method of draining water from a press arrangement serving to dewater a pulp web which includes at least one elongated press nip in a direction of web travel, comprising:

positioning a water draining device adjacent the press arrangement, the water draining device comprising a receiving tank, the receiving tank including a first chamber under ambient pressure, and a second chamber connected to the first chamber and to a vacuum source, and the second chamber including at least one drain;

receiving water in the first chamber;

drawing a vacuum on said second chamber to aspirate water collecting in the first chamber into the second chamber; and

draining water through the at least one drain from the said second chamber.

23. The method according to claim 22 wherein the pulp web comprises a paper or cardboard web.

24. A press arrangement for dewatering a pulp web in a machine for at least one of production and finishing of a pulp web, comprising:

at least one press nip formed by a lower press roll and an upper press roll arranged approximately above and pressed against said lower press roll;

at least one dewatering belt adapted to run above the pulp web through said at least one press nip, and to receive water expressed from the pulp web; and

a water receiving device positioned between said upper press roll and said at least one dewatering belt, said water receiving device comprising at least one suction channel projecting into a wedge-shaped area between said upper press roll and said at least one dewatering belt and extending along said at least one press nip to be transverse to the pulp web, and a connection to connect said at least one suction channel to a source of reduced pressure.

25. The press arrangement according to claim 24 wherein said at least one suction channel has a gap width of 1 to 50 mm at least in an initial zone of the at least one suction channel.

26. The press arrangement according to claim 25 wherein said at least one suction channel has a gap width of 2 to 7 mm at least in an initial zone of the at least one suction channel.

27. The press arrangement according to claim 24 wherein, at least in an initial zone of said at least one suction channel, there is a reduced pressure of 50 to 80,000 N/m².

28. The press arrangement according to claim 24 wherein, at least in an initial zone of said at least one suction channel, there is a reduced pressure of 10,000 to 30,000 N/m².

29. The press arrangement according to claim 24 including a collecting tank connected to said at least one suction channel that receives and transports away water aspirated into said at least one suction channel.

30. The press arrangement according to claim 29 wherein said at least one suction channel includes a mouth which is positioned above a maximum water level of said collecting tank, and said collecting tank includes said connection to connect said at least one suction channel to said source of reduced pressure, said connection being positioned above the maximum water level.

31. The press arrangement according to claim 24 wherein said at least one suction channel comprises an upper channel wall and a lower channel wall extending along the at least one press nip to run transverse to the pulp web, said upper channel wall and said lower channel wall extending at an acute angle to said at least one dewatering belt at least in an initial zone of the suction channel.

32. The press arrangement according to claim 31 wherein said lower channel wall includes an edge, and said edge is positioned close to said at least one dewatering belt.

33. The press arrangement according to claim 32 wherein said edge of said lower channel wall is positioned less than 20 mm from said at least one dewatering belt.

34. The press arrangement according to claim 31 wherein said lower channel wall includes an edge, and said edge touches or is immersed in said at least one dewatering belt.

35. The press arrangement according to claim 34 wherein the edge of the lower channel wall comprises a wear-resistant strip.

36. The press arrangement according to claim 35 wherein said strip forms an angle of between 10 and 45° with said at least one dewatering belt.

37. The press arrangement according to claim 31 wherein said upper channel wall is part of a water capture device for water thrown off from said upper press roll above said at least one suction channel.

38. The press arrangement according to claim 37 wherein the upper channel wall includes a surface of said at least one suction channel outside said at least one suction channel, said surface extending at an incline to said at least one press nip, the upper channel wall including an edge projecting into the wedge-shaped area at least slightly less than an edge of the lower channel wall.

39. The press arrangement according to claim 31 wherein said upper channel wall includes an edge projecting into the wedge-shaped area exactly as far as or further than the lower channel wall.

40. The press arrangement according to claim 29 wherein said collecting tank is divided into a plurality of chambers extending along the at least one press nip and transverse to the pulp web, each of said plurality of chambers including a connection for the source of reduced pressure.